

CERATOLANA PAPUAE, A NEW GENUS AND SPECIES
OF MANGROVE-BORING CIROLANID ISOPOD FROM
PAPUA NEW GUINEA

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Abstract.—Bowman, Thomas E., Department of Invertebrate Zoology, Smithsonian Institution, Washington, D.C. 20560.—*Cerotolana papuae*, n. gen., n. sp., from burrows in mangroves in Papua New Guinea is described. It is distinguished by fusion of the head with pereonite 1 and the prominent "horns" formed by the rostrum and the frontal lamina.

The first specimen of the extraordinary cirolanid isopod described herein was sent to me by Dr. Helmut Kühne, Bundesanstalt für Materialprüfung, Berlin, West Germany, with the request that I identify it for the collector, Miss Suzanne Rayner, Forest Products Research Centre, Boroko, Papua New Guinea. When I reported to Miss Rayner that her isopod belonged to an undescribed genus and species of Cirolanidae, she kindly sent me a second specimen, together with full collection data. Thanks are tendered to Dr. Kühne and to Miss Rayner for making it possible for me to describe this remarkable isopod, whose appearance is exquisitely shown by Mrs. Carolyn Bartlett Gast in Fig. 1. I am grateful to Dr. Fenner A. Chace, Jr., for his careful review of the manuscript.

Cirolanidae

Cerotolana, new genus

Body long, rather slender, apparently unable to roll into a ball. Eyes present. Rostrum and frontal lamina produced into prominent "horns." Head and pereonite 1 fused. Pleonites 1-3 reaching lateral margins of pleon; epimera of pleonite 3 covering lateral margins of pleonites 4-5. Peduncles of antennae 1 and 2 3-merous and 5-merous respectively. Pereopod 1 robust; pereopods 2-7 more slender, ambulatory. Rami of pleopods undivided; exopods of pleopods 3-5 with partial suture laterally; endopods without marginal setae; exopods with marginal setae, numbers of setae decreasing progressively from pleopod 1 to pleopod 5.

Etymology.—From the Greek *Cerato* (= horn) referring to the modified frontal lamina, + (*Ciro*) *lana*. Gender feminine.

Type-species.—*Cerotolana papuae*, new species.

Cerotolana papuae, new species

Figs. 1-4

Material examined.—Papua New Guinea, near Marshall Lagoon, leg. Suzanne Rayner, from mangrove: Mouth of Gonema River, 10°05'S, 148°



Fig. 1. *Ceratolana papuae*, lateral, dorsal, ventral and oblique anterodorsal views. Drawings by Carolyn Bartlett Gast.

10'E, 9 March 1975, ♂ holotype, 25 mm, USNM 169302. Galley Reach (an inlet), 9°05'S, 146°57'E, 19 April 1975, ♂ paratype, 22 mm, USNM 169303.

Description.—Body slender, about $3\frac{1}{2}\times$ as long as wide; sides nearly parallel, diverging slightly posteriorly, greatest width at pereonite 7. Head short, fused with pereonite 1; posterior margin indicated by raised trans-



Fig. 2. *Ceratolana papuae*, holotype: a, Left mandible; b, Palp of left mandible; c, Maxilla 1; d, Maxilla 2; e, Endopod of maxilla 2; f, Maxilliped.

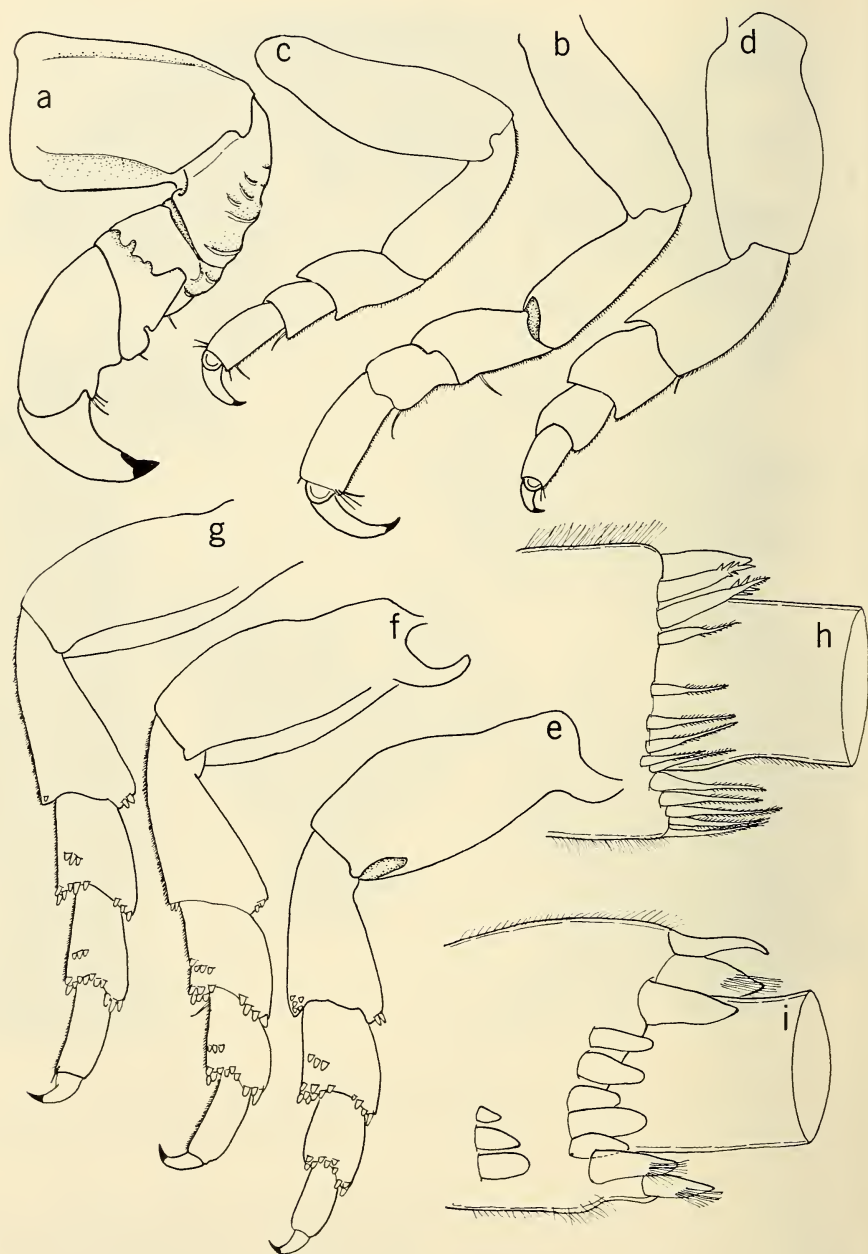


Fig. 3. *Ceratolana papuae*, holotype, left pereopods: a, Pereopod 1; b, Pereopod 2; c, Pereopod 3; d, Pereopod 4; e, Pereopod 5; f, Pereopod 6; g, Pereopod 7; h, Pereopod 7, carpo-propal suture, medial; i, Same, lateral.

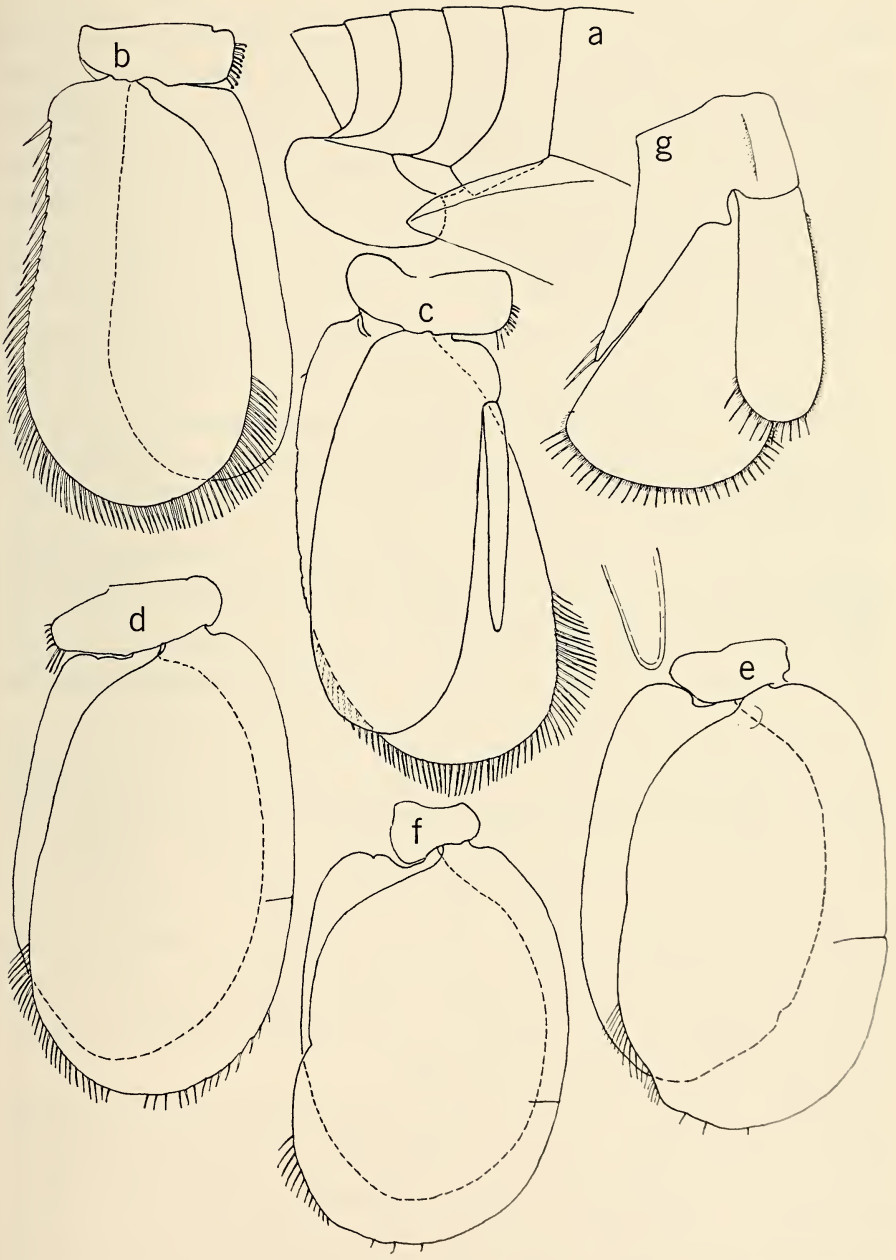


Fig. 4. *Ceratolana papuae*: a, Paratype, pereonite 7 and pleon, lateral; b-g, Holotype; b-f, Pleopods 1-5; g, Left uropod, ventral.

verse bar between posterior bases of ocular lobes; dorsum with depression anterior to transverse bar. Eyes small, borne on lateral surfaces of elevated ocular lobes; each lobe with small conical process posteromedial to cornea and large bifid anterior process. Frons produced anteriorly into conspicuous conical rostrum nearly reaching distal margin of 2nd peduncle segment of antenna 2. Frontal lamina produced anteriorly into subcylindrical horn ending in ventral prong flanked by 2 subapical prongs, and 2 shorter dorsal prongs, reaching apices of subapical prongs.

Pereonite 1 with longitudinal middorsal groove in anterior half, connecting posteriorly to short transverse groove. All pereonites with surface punctae and inconspicuous surface fuzz. Coxae increasing in size posteriorly, those of pereonites 5-7 with acutely produced posteroventral corners; coxa 7 overlapping pleonites 1-2.

Pleonites 1-3 reaching lateral margins of pleon. Pleonite 4 covering lateral margins of pleonite 5; lateral margins of pleonite 4 covered by much expanded pleura of pleonite 3 which are also expanded anteriorly ventral to pleura of pleonite 2.

Telson linguiform; margins hirsute, without spines. Dorsum with median longitudinal ridge having 3 main peaks, and anterolateral longitudinal ridge at base of peduncle of each uropod.

Antenna 1 short, reaching midlength of 4th segment of antenna 2 peduncle; flagellum 10-11-merous. Antenna 2 robust, reaching slightly beyond posterior margin of pereonite 4, flagellum 28-32-merous.

Mandibles with 3-cusped incisors; cusps more deeply separated in right incisor. Lacinia of left molar with 7 spines; right lacinia not examined. Segment 2 of palp nearly 3× length of segment 1, with about 21 setae on distal $\frac{2}{3}$; segment 3 falcate, slightly more than $\frac{1}{2}$ length of segment 2, armed with 26 setae increasing in length distally. Exopod of maxilla 1 with 11 spines and 1 setae between spines at midlength of gnathal surface. Endopod with 3 terminal spines, each with a circle of spinules at midlength; and a subterminal setule. Maxilla 2 with 7 large spines each on palp and exopod, and 6 setae on exopod; endopod with 18 setae of varying lengths. Maxilliped with 4 retinaculae; palp segments expanded medially, with rather dense setation on both margins.

Pereopod 1 shorter and stouter than other pereopods; basis quite broad; ischium and merus with transverse rugae; carpus with incisure on posterior margin; dactyl strongly developed. Pereopods 2-4 successively shorter, moderately slender, posterior margins pubescent, setation very sparse. Pereopods 5-7, distolateral margins of ischium, carpus, and merus armed with robust, blunt spines; distomedial margins with more slender barbed spines; pereopods 5 and 6 subequal in length, slightly shorter than pereopod 7.

Appendix masculina of pleopod 2 inserted at proximal $\frac{1}{8}$ of endopod, reaching distal $\frac{1}{4}$; straight; apex obtuse.

Uropod peduncle acutely produced medially. Exopod oblong, much narrower and distinctly shorter than spatulate endopod. Margins of both rami pubescent, armed with setae but without spines.

Relationships.—Fusion of the head with pereonite 1 is found in the highly modified Gnathiidea and in certain Epicaridea, but not elsewhere among the Isopoda, as far as I know. The extraordinary modification of the rostrum and especially of the frontal lamina is unique to *Ceratolana*. The pattern of pleonal segmentation is shared by *Creaseriella* and *Speocirolana* (Bowman, 1975), but in neither of these genera are the epimera of pleonite 3 so expanded. The mouthparts of *Ceratolana* are typically cirolanid, but the relationships of the new genus to other genera of Cirolanidae are not known.

Habitat.—According to Miss Rayner, *Ceratolana* was found only in mangroves, in cylindrical burrows up to 25 mm in length and at right angles to the surface of the mangrove. The burrows were in the intertidal region in a part of the estuary in which the salinity could vary from 30‰ to 5‰ during a tidal cycle. Day water temperatures here vary from 26°–32°C during the year.

It is not known how *Ceratolana* digs its burrows, but it seems possible that the horns of the rostrum and frontal lamina may be used to rasp the wood. The fusion of the head and pereonite 1 would improve the leverage for rasping movements.

Literature Cited

- Bowman, Thomas E. 1975. A new genus and species of troglobitic cirolanid isopod from San Luis Potosi, Mexico. Occasional Papers Museum Texas Tech University 27:1–7.